

202306UECM34630E4b

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Review of preview

Started on	Tuesday, 5 September 2023, 10:58 PM
Completed on	Tuesday, 5 September 2023, 10:58 PM
Time taken	8 secs
Marks	0/8
Grade	0 out of a maximum of 10 (0%)

1

Marks: 1

You fit a Gamma distribution to a sample of 10 claim amounts below.

x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}
289.3	339.9	142.3	236.5	212.2	228.7	354.6	205.8	345.4	556.5

The maximum likelihood estimates are $\hat{\alpha} = 7$ and $\hat{\theta} = 41.59$. Determine the value of the Bayesian Information Criterion (BIC). _____

Answer:

X

[Make comment or override grade](#)

Incorrect

Correct answer: 125.24517

Marks for this submission: 0/1.

2

Marks: 1

You fit a Gamma distribution to a sample of 90 claim amounts. You are given:

- The maximum likelihood estimates are $\hat{\alpha} = 3$ and $\hat{\theta} = 50.28$.
- $\sum x_i = 13576.56$
- $\sum \ln(x_i) = 437.9$

Determine the value of the Bayesian Information Criterion (BIC). _____

Answer:

X

[Make comment or override grade](#)

Incorrect

Correct answer: 1037.719619

Marks for this submission: 0/1.

3

Marks: 1

You fit various models for 36 loss observations using maximum likelihood. The fits maximizing the likelihood for a given number of parameters have the following loglikelihoods:

Number of parameters	Loglikelihood
1	-141.45
2	-133.0
3	-135.4
4	-125.01
5	-122.89

If BIC is the value of the Bayesian Information Criterion, and k is the number parameters in the selected models. Find BIC+k. _____

Answer:

[Make comment or override grade](#)
Incorrect
Correct answer: 269
Marks for this submission: 0/1.

4

Marks: 1

You are given a sample of 5 observations from Pareto(α , $\theta = 1570$) distribution:

1,880.38 2,401.76 1,571.06 1,771.18 1,656.29.

Determine the value of the Bayesian Information Criterion (BIC). _____

Answer:

[Make comment or override grade](#)
Incorrect
Correct answer: 90.442438
Marks for this submission: 0/1.

5

Marks: 1

You are given a sample of 5 observations from Pareto(α , $\theta = 1260$) distribution:

1,509.30	1,927.72	1,261.05	1,421.65	1,329.45
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Determine the value of the Akaike Information Criterion (AIC). _____

Answer:

[Make comment or override grade](#)
Incorrect
Correct answer: 88.635
Marks for this submission: 0/1.

6

Marks: 1

You are given a sample of 10 observations from the following distribution:

$f(x) = 1/(2\theta^3)x^2e^{-x/\theta}, x>0$									
x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}
105.79	133.43	35.19	78.46	66.58	74.63	141.68	63.51	136.52	263.27

Determine the value of the Akaike Information Criterion (AIC). _____

Answer:

[Make comment or override grade](#)
Incorrect
Correct answer: 109.6
Marks for this submission: 0/1.

7

Marks: 1

You fit a Gamma distribution to a sample of 10 claim amounts below.

x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}
202.4	244.4	86.2	159.5	140.2	153.3	256.8	135.1	249.1	430.9

The maximum likelihood estimates are $\hat{\alpha} = 5$ and $\hat{\theta} = 41.16$. Determine the value of the Akaike Information Criterion (AIC). _____

Answer:

[Make comment or override grade](#)
Incorrect
Correct answer: 120.5
Marks for this submission: 0/1.

8

Marks: 1

You fit various models for 27 loss observations using maximum likelihood. The fits maximizing the likelihood for a given number of parameters have the following loglikelihoods:

Number of parameters	Loglikelihood
1	-142.1
2	-141.63

3	-139.36
4	-137.67
5	-136.48

If AIC is the value of the Akaike Information Criterion, and K is the number parameters in the selected models. Find AIC+K. _____

Answer:



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Incorrect

Correct answer: 288

Marks for this submission: 0/1.

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